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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,940

12/15/2004

Yoshirou Funakoshi

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06/30/2006

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EXAMINER

PARSA, JAFAR F

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/516,940

Applicant(s)

FUNAKOSHI ET AL.

Examiner

Jafar Parsa

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/21/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The word "same" in claims 5 and 6 render the claims indefinite. Claims 5 and 6 are referring to the same metallic copper catalyst, while the copper catalyst has been only recited once in the claims.

The term "item 3" in claim 7 renders the claim indefinite. The term "item 3" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 rejected under 35 U.S.C. 102(b) as being anticipated by Von Werner (USPN 4,587,366).

Examiner notes that determination of patentability in claims 1-2 are based on claiming a metallic copper catalyst, the intended use does not have any patentable weight in this case. Von

Werner teaches a process for preparing fluoroalkyl substituted fluoroalkyl iodoalkane in the presence of a metallic copper catalyst (see col. 1, lines 40-45).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konrad et al (Journal of Fluorine Chemistry, 28 (1985) 229-233) in view of Von Werner (USPN 4,587,366).

Applicants' claimed invention is directed to a process for producing a polyfluoroalkylethyl iodide using a metal copper catalyst in an ethylene addition reaction to a polyfluoroalkyl iodide.

Konrad teaches a process for producing polyfluoroalkylethyl iodide in the presence of a noble metals in an alkene addition reaction such as ethylene to a polyfluoroalkyl iodide. See formula 1. The reaction is conducted at a temperature of 80-120<sup>0</sup> C under a pressure of 20 bar (2Mpa). See Table 1.

The difference between Konrad and the claimed invention is that the instant claim requires a copper metallic catalyst. However, Von Werner in a process for preparing fluoroalkyl iodide employs a metallic copper. It would therefore have been prima facie obvious to the skilled artisan at the time the invention was made to replace the noble metal catalyst in the reaction taught by Konrad with a metallic copper catalyst as recited in the prior art in order to conduct the reaction at a lower temperature and pressure.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homoto et al (US 7,038,095) in view of Von Werner (USPN 5,639,923).

Applicants' claimed invention is directed to a process for producing polyfluoroalkylethyl iodide the process comprising:

- a) a step of reacting tetrafluoroethylene with a polyfluoroalkyl iodide,
- b) a step of reacting ethylene with a compound obtained in step a to produce a polyfluoroalkylethyl iodide. Applicants' invention further comprising a process for producing polyfluoroalkylethyl acrylate, the process comprising steps a, b and c in the presence of a copper catalyst, steps a and b are the same as above. C) a step of

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reacting compound obtained in step b with a carboxylate to produce a poly fluoroalkylethyl acrylate.

Homoto teaches a method for producing a mixture of fluoroalkyl iodide telomers the process comprising:

(A) obtaining a first reaction mixture containing a mixture of fluoroalkyl iodide telomers represented by the formula (I) with the polymerization degree  $n$  of 1 or more by reacting tetrafluoroethylene with a fluoroalkyl iodide of the formula:  $R_fI$  wherein  $R_fI$  represents a fluoroalkyl group having 1 to 10 carbon atoms;

(B) an ethylene addition step of obtaining a mixture of ethylene adducts by adding ethylene to the mixture of the fluoroalkyl iodide telomers obtained above and

(C) an esterification step of obtaining the above mixture of the fluorine-containing (meth)acrylate esters by reacting the mixture of the ethylene adducts obtained in the step (B) with a (meth)acrylate compound (see col. 9, lines 40-53 and Examples 1-3).

The difference between Homoto and the claimed invention is that the instant claims require a metallic copper catalyst for preparing polyfluoroalkyl iodide telomers. However, Von Werner teaches a process for preparing polyfluoroalkyl iodide telomers by reacting tetrafluoroethylene with short chain perfluoroalkyl iodide in the presence of a copper catalyst in order to increase the selectivity of the reaction product. See abstract and Examples 1-12. It would therefore have been prima facie obvious to the skilled artisan at the time the invention was made to conduct the reaction described above in the presence of a copper catalyst, in order to increase the selectivity of the reaction product as suggested by Von Werner.

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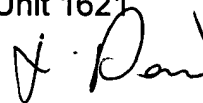
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP

Jafar Parsa  
Primary Examiner  
Art Unit 1621



J. PARSA  
PRIMARY EXAMINER